

SURVEY REPORT

OKLAHOMA DEPARTMENT OF WILDLIFE CONSERVATION



FISH MANAGEMENT SURVEY AND RECOMMENDATIONS

FOR

ROBERT S KERR LAKE

2022

SURVEY REPORT

State: Oklahoma

Project Title: Robert S Kerr Lake Fish Management Survey Report

Period Covered 2022.

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Robert S Kerr Lake

ABSTRACT

R.S. Kerr (Kerr) was sampled by fall gillnetting in 2022 to determine fish population trends. White Bass, Striped Bass, Channel and Blue Catfish catch rates all increased from the most recent sample. Catch rates of Crappie, Shad, Sauger and Walleye declined from the most recent sample. Recommendations are to work cooperatively with USACE personnel to refurbish habitat sites, conduct Largemouth bass spring electrofishing and summer Blue catfish electrofishing surveys.

INTRODUCTION

Robert S. Kerr is a main stem reservoir on the Arkansas River, the dam is located approximately 9 miles south of Sallisaw in Sequoyah County, OK. RS Kerr is owned and operated by the U.S. Army Corps of Engineers (USACE) and was authorized as part of the McClellan-Kerr Arkansas River Navigation System in the River and Harbor Act approved July 31, 1946. The lock and dam project became operational in 1970 and also has hydroelectric capability. At normal pool Kerr covers approximately 43,800 surface acres. Water quality can vary widely within Kerr with the main body of the lake having an average fall secchi reading of 19 inches with turbidity levels due to plankton and suspended solids.

Shoreline habitat in Kerr consists of large woody debris, naturally rocky areas, submerged and emergent vegetation and man-made structures such as jetties, docks, areas of rip-rap, barge ports and bridge pilings. A stable water level allows for floating and emergent vegetation to become established along the edges and in shallow areas. ODWC fish attractors are maintained primarily in the short mountain, Cowlington point and Sallisaw creek areas (Appendix I).

Kerr offers a variety of angling opportunities with a large diversity of game and non-game fish from skipjack to striped bass, making it a popular destination for anglers. Kerr follows statewide regulations for all sportfish species except sauger and walleye which have a 16" minimum length limit.

RESULTS

Crappie

Crappie were sampled using standard experimental gillnets in the fall of 2022. Sites randomly chosen in 300m grids and were fished 18-24 hrs. Crappie abundance for the 2022 sample increased from the 2019 sample with a total catch per unit of effort (CPUE) of 1.8 and the highest abundance of fish in the quality size range (Table 1). Crappie body condition measured as relative weight (Wr) was well above the acceptable level of ≥ 90 (Table 2). Length frequency histograms reiterate the catch rate data with 51% of fish capture falling into the 8 & 9 inch length categories, which was similar to the 2019 catch (Figure 1). The largest crappie captured in this sample measured 12.4 inches and 1.1 lbs.

Table 1. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Crappie collected by fall gill net from RS Kerr Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 5.1 in		<u>Quality</u> 7.9 in		<u>Preferred</u> 9.8 in		<u>Memorable</u> 11.8 in	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2008</u>	28	1.8	0.1	81	.	.	0.2	108	0.1	111
<u>2019</u>	7	0.5	0.1	107	0.2	103	0.1	106	0.1	103
<u>2022</u>	33	1.8	0.22	94	0.98	106	0.16	109	0.44	100

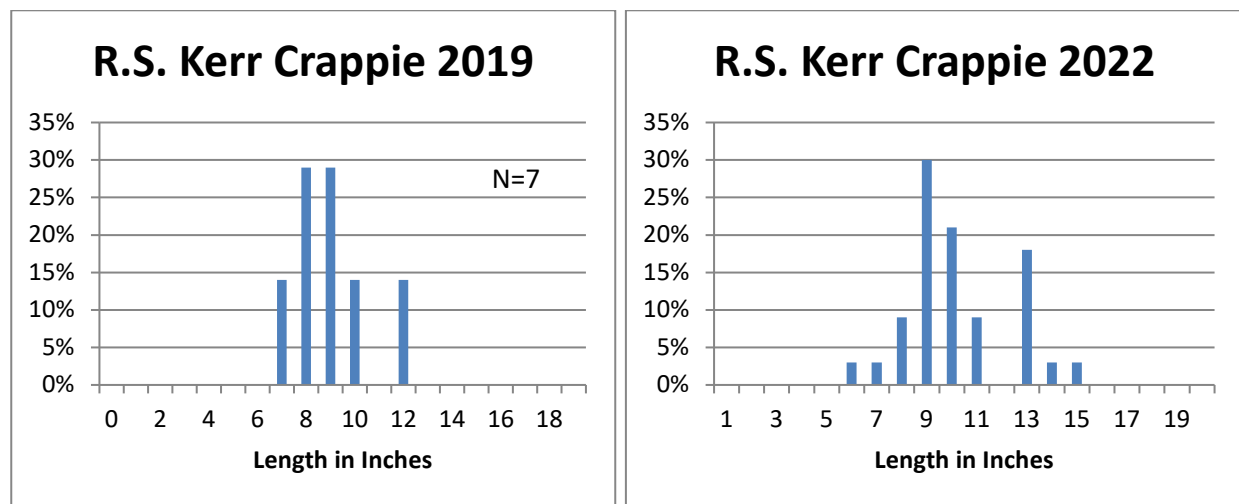


Figure 1. Length Frequency Histograms of Crappie from R.S. Kerr gillnetting 2019 & 2022

Channel Catfish

Channel catfish were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates remained steady with a slight increase to 3.6 which is comparable to the two previous surveys. All channel catfish sampled fell in or below the quality size category with stock sized fish the most abundant (Table 2). Channel catfish body conditions measured as relative weight (Wr) were slightly below the acceptable minimum of ≥ 90 .

Table 2. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Channel catfish collected by fall gill net from R.S. Kerr Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 11 in		<u>Quality</u> 16.1 in		<u>Preferred</u> 24 in		<u>Memorable</u> 28 in		<u>Trophy</u> 35.8 in	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2008</u>	58	3.7	0.7	86	0.4	89	.	.	.	.	.	.
<u>2019</u>	41	3	1.49	87	0.29	86	.	.	.	.	.	.
<u>2022</u>	66	3.6	2.06	86	0.44	87	.	.	.	.	.	.

Blue Catfish

Blue Catfish were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Blue cat catch rates, measured as catch per unit of effort (CPUE) has increased with each subsequent sample with a 2022 catch rate of 13.4. Stock sized blue cats were the most represented followed by the quality size (Table 3). Blue cat body condition, measured as relative weight (Wr) were above acceptable levels (≥ 90) for the sub-stock and preferred size categories and below acceptable levels in the stock and quality categories. Blue cat length frequencies show fish represented across a large spectrum of inch groups with the 16&17 inch groups having a slight advantage in the 2022 sample but displaying a classic bell curve (Figure 2).

Table 3. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Blue catfish collected by fall gill net from R.S. Kerr Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 11.8 in		<u>Quality</u> 20.1 in		<u>Preferred</u> 29.9 in		<u>Memorable</u> 35 in		<u>Trophy</u> 44.9 in	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
<u>2008</u>	137	9.9	3	81	0.6	87	.	.	.	.	.	.
<u>2019</u>	168	12.3	7.41	81	1.61	82	0.15	.	.	.	.	.
<u>2022</u>	247	13.4	8.27	84	3	86	0.05	101	.	.	.	.

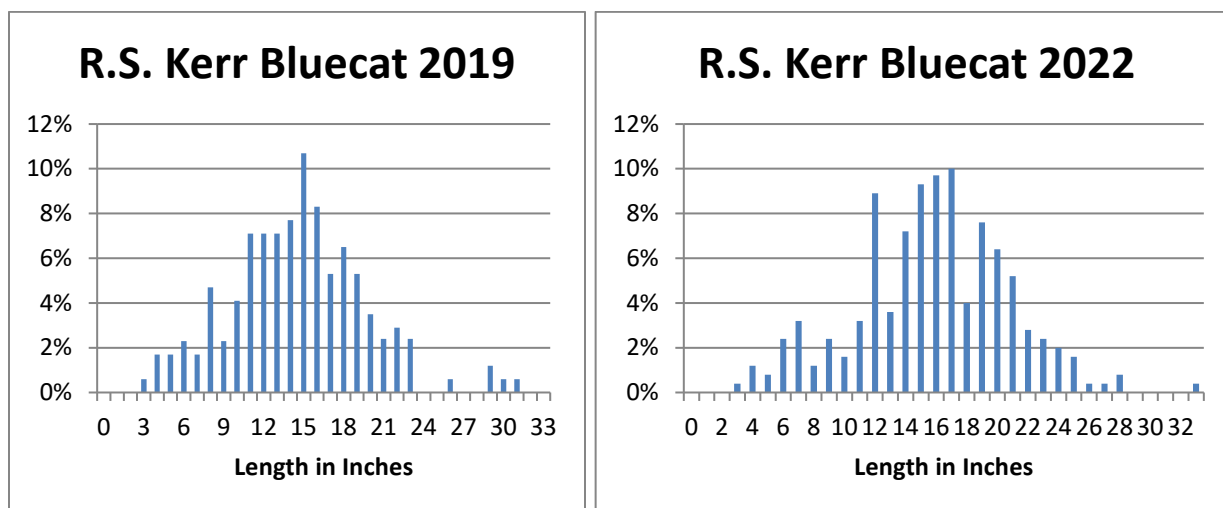


Figure 2. Length Frequency Histograms of Blue catfish captured via gill netting from R.S. Kerr 2019 & 2022.

Sauger

Sauger were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates and relative weights are displayed in Table 4, however numbers of sauger caught were too low to make any accurate assessments. Future surveys should be considered to obtain better sauger population data.

Table 4. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Sauger collected by fall gill net from R.S. Kerr Lake. Acceptable Wr values are ≥ 90 .

Year	No.	TOTAL		Stock (7.9 in)		Quality (11.8 in)		Preferred (15 in.)		Memorable	
		CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2008	3	0.18	88	0.06	93			0.12	86		
2019	3	0.22	91	0.07	81	0.15	97	.	.	.	.
2022	1	0.05	97	0.05	97	.	.	.	.	.	.

Striped Bass

Striped bass were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates, measured as catch per unit of effort (CPUE) remained low but had increased from the 2019 survey (Table 5). Striper body conditions,

measured as relative weight (Wr) were well over the minimum acceptable minimum level (>90). This indicates that striped bass in all size categories have plenty of forage. Sizes of striper fell within several inch groups with no particular size class standing out, as indicated by the length frequency histogram (Figure 3).

Table 5. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of Striped Bass collected by fall gill net from R.S. Kerr Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> 11.8 in		<u>Quality</u> 20.1 in		<u>Preferred</u> 29.9 in		<u>Memorable</u> 35 in		<u>Trophy</u> 44.9 in	
Year	No.	CPUE	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr	CPUE	Wr
2008	0	.	.	.	.	.	.	.	.	.	.	.
2019	3	0.22	0.15	88	0.07	79	.	.	.	.	.	.
2022	14	0.76	0.27	107	0.11	103	0.05	102	.	.	.	.

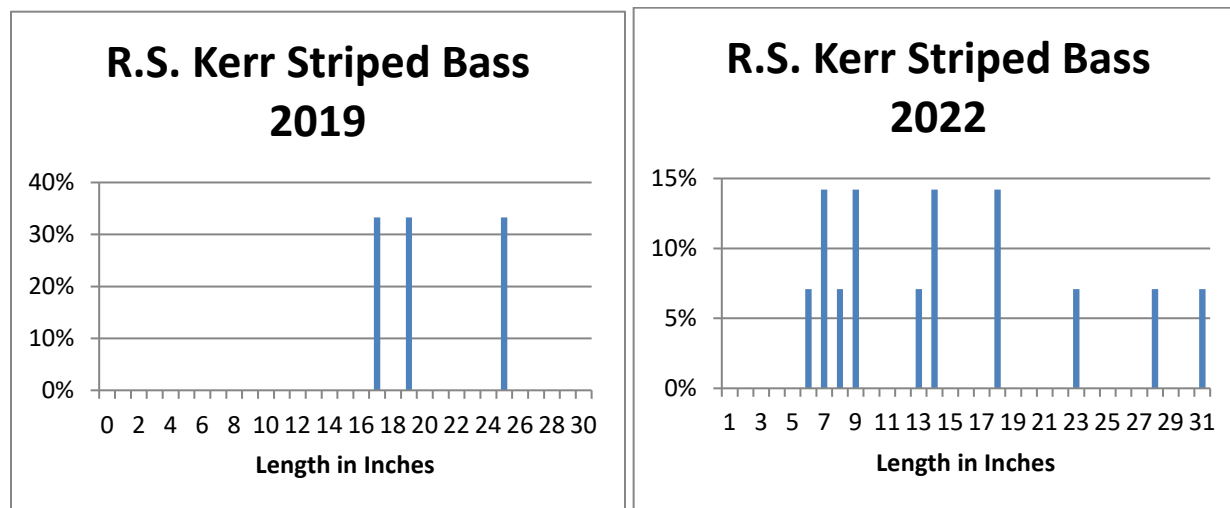


Figure 3. Length Frequency Histograms for Striped Bass caught via gillnetting in R.S. Kerr 2019 & 2022

White Bass

White bass were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates were significantly higher than the 2019

sample, increasing to a catch per unit of effort (CPUE) of 3.6 (Table 6). White bass body condition, measured as relative weight (Wr) was well above the minimum acceptable level (>90) with an overall average of 99, indicating no forage limitation. While catch rates were high, 68% of the sample were ≤ 8 inches, mostly in the stock sized category (Figure 4).

Table 6. Total number (No.), catch per unit of effort (CPUE), and relative weights (Wr) by size groups of White Bass collected by fall gill net from R.S. Kerr Lake. Acceptable Wr values are ≥ 90 .

		Total CPUE	<u>Stock</u> <u>5.9 in</u>		<u>Quality</u> <u>9.1 in</u>		<u>Preferred</u> <u>11.8 in</u>		<u>Memorable</u> <u>15 in</u>		<u>Trophy</u> <u>18.1 in</u>	
<u>Year</u>	<u>No.</u>	<u>CPUE</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>	<u>CPUE</u>	<u>Wr</u>
2008	4	0.26	0.06	92	0.06	102	0.07	109	.	.	.	.
2019	30	2.18	0.73	103	0.29	97	0.15	104	.	.	.	.
2022	66	3.6	1.53	100	0.33	100	0.6	109	0.11	81	.	.

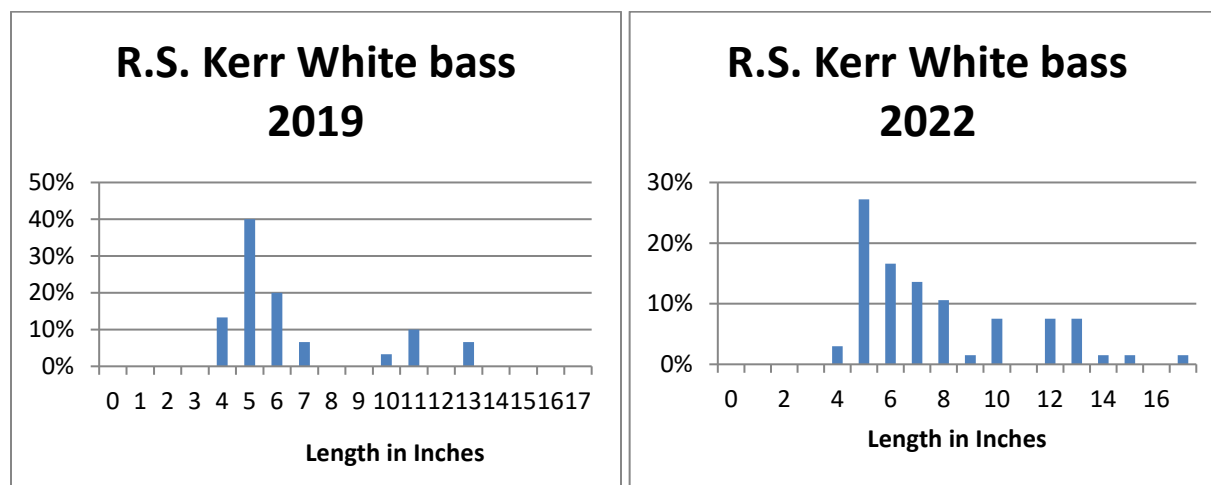


Figure 4. Length Frequency Histograms for White Bass captured via gillnetting in R.S. Kerr 2019 & 2022

Gizzard Shad

Gizzard Shad were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates for gizzard shad dropped significantly from the 2019 sample with a catch per unit of effort (CPUE) of 1.9 (Table 7). To be utilized as forage across a

wide variety of species and size classes within species, optimum size of gizzard shad is ≤ 7.1 inches. The 2022 sample was comprised of 57% of shad at or below 8 inches in length (Figure 5). Future surveys for shad should utilize the shad specific gill nets to determine if the abundance is in decline or if the experimental net is size biased.

Table 7. Total number (No.), catch per unit of effort (CPUE) by size groups of Gizzard Shad collected by fall gill net from R.S. Kerr Lake.

Year	No.	Total CPUE	Substock	Stock	Quality
			0 In.	7.1 In.	11 In.
2008	355	22.9	14.2	8	0.7
2019	95	6.9	1.24	4.52	0.73
2022	35	1.9	0.71	0.76	0.44

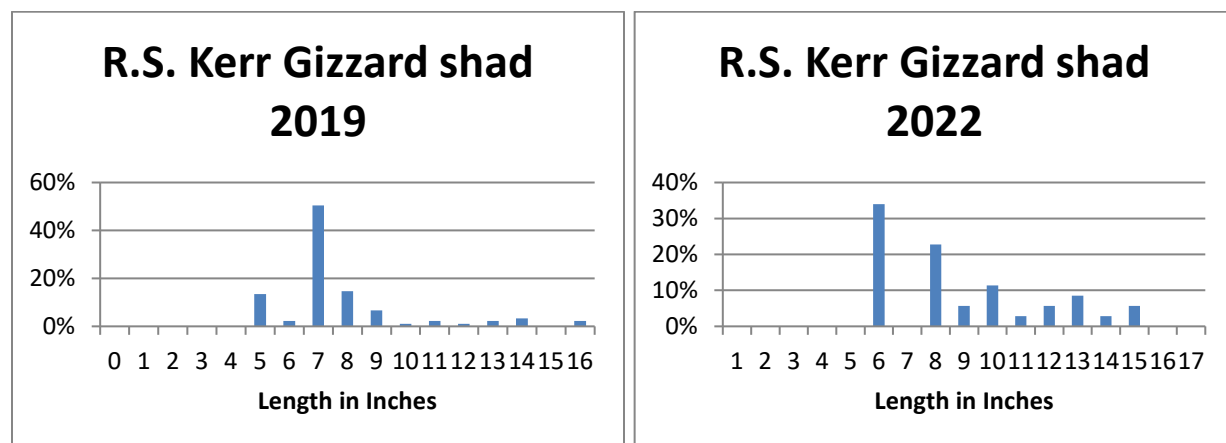


Figure 5. Length Frequency Histograms for Gizzard Shad captured via gillnetting in R.S. Kerr 2019 & 2022.

Threadfin Shad

Threadfin Shad were sampled using standard experimental gillnets in the fall of 2022. Sites were randomly chosen in 300m grids and were fished 18-24 hrs. Catch rates in the 2022 sample were lower than the 2019 sample with only 7 individuals captured (Table 8). Catch rates of Threadfin shad were too low to draw any meaningful conclusions. Future surveys for shad should utilize the shad specific gill nets to determine if the abundance is in decline or if the experimental net is size biased.

Table 8. Total Number (No.) and catch per unit effort (CPUE) of Threadfin Shad captured via fall gillnetting.

		TOTAL
Year	No.	CPUE
2008	205	13.3
2019	26	1.9
2022	7	0.38

Appendix I. ODWC Habitat Enhancement Sites

Area	Type	Latitude	Longitude	Date
Short mtn Cove	Cedar Brush Pile	35.324941	-94.789358	9/12/2018
Short mtn Cove	Cedar Brush Pile	35.32116	94.790869	9/12/2018
Short mtn Cove	18 cedars	35.320082	94.788284	3/19/2020
Short mtn Cove	43 cedar trees: pile/row	35.323567	94.790893	3/19/2020
Short mtn Cove	13 cedar trees scattered near campgrounds			3/19/2020
Cowlington point	15 cedar trees	35.3195	-94.83205	5/17/2021
Cowlington point	14 cedar trees	35.324717	-94.8293	5/17/2021
Cowlington point	8 cedars along bank	35.323808	94.827134	5/17/2021
Cowlington point	9 cedars along bank	35.323437	94.825327	5/17/2021
Cowlington point	9 cedars trees	35.323569	94.824035	5/17/2021
Cowlington point	8 trees	35.324006	94.823632	5/17/2021
Sallisaw Creek	4 cedars	35.3834	-94.8693	5/18/2021
Sallisaw Creek	2 elm trees	35.38605	94.871667	5/18/2021

Appendix II R.S. Kerr recent stocking history

2001	Walleye	197,000	1.25
2001	Sauger	5,000	2
2002	Walleye	94,238	1
2002	Sauger	10,000	2
2003	Walleye	216,000	1.2
2004	Walleye	136,118	1.25
2004	Striped Bass	400,000	fry
2005	Walleye	200,500	2
2010	Sauger	88,000	1.25
2012	Sauger	172,256	fry
2012	Sauger	6,690	2
2023	Sauger	83,465	1.5